

Claims

1. A security element (12, 18) with a cover layer (22; 42; 50) having gaps (24; 30, 32, 34; 44) in the form of characters or patterns forming visually and/or machine readable first information, characterized in that a printed image (26; 36, 38, 40; 46, 48; 52) forming visually and/or machine readable second information is disposed in the gaps (24; 30, 32, 34; 44) in register, the first and second information being different.
2. A security element (12, 18) according to claim 1, characterized in that the cover layer (22; 42; 50) is opaque at least in partial areas.
3. A security element (12, 18) according to claim 1 or 2, characterized in that the cover layer (22; 42; 50) is screened at least in partial areas, being in particular in the form of a dot screen, a line screen or a screen of repeating similar screen elements.
4. A security element (12, 18) according to at least one of claims 1 to 3, characterized in that the cover layer (22; 42; 50) is semitransparent at least in partial areas.
5. A security element (12, 18) according to at least one of claims 1 to 4, characterized in that the cover layer (22; 42; 50) comprises a metal coating, the metal coating preferably being formed of aluminum, gold, copper, iron, nickel or an alloy containing one or more of said metals.
6. A security element (12, 18) according to at least one of claims 1 to 5, characterized in that the cover layer (22; 42; 50) contains a dielectric layer structure that produces different color effects in reflected light upon a change of viewing angle.
7. A security element (12, 18) according to claim 6, characterized in that the dielectric layer structure is opaque or semitransparent.
8. A security element (12, 18) according to at least one of claims 1 to 7, characterized in that the security element (12, 18) contains a plastic layer with a surface relief in the form of a diffraction structure embossed thereinto.

9. A security element (12, 18) according to at least one of claims 1 to 8, characterized in that the printed image (26; 36, 38, 40; 46, 48; 52) is finely structured and/or of high resolution.
10. A security element (12, 18) according to at least one of claims 1 to 9, characterized in that the printed image (26; 36, 38, 40; 46, 48; 52) contains an ink containing luminescent pigments, magnetic pigments, liquid crystal pigments and/or interference layer pigments.
11. A security element (12, 18) according to at least one of claims 1 to 10, characterized in that the printed image (26; 36, 38, 40; 46, 48; 52) is multicolored or formed of inks with different pigment content.
12. A security element (12, 18) according to at least one of claims 1 to 11, characterized in that the printed image (26; 36, 38, 40; 46, 48; 52) forms letters, numbers or geometrical figures.
13. A security element (12, 18) according to at least one of claims 1 to 12, characterized in that the printed image (26; 36, 38, 40; 46, 48; 52) is printed into the gaps (24; 30, 32, 34; 44) by a digital printing method.
14. A security element (12, 18) according to at least one of claims 1 to 13, characterized in that the gaps (24; 30, 32, 34; 44) form letters, numbers or geometrical figures.
15. A security element (12) according to at least one of claims 1 to 14, characterized in that the security element forms a security thread (12) or a tear thread.
16. A security element (18) according to at least one of claims 1 to 14, characterized in that the security element forms a transfer element (18) or a label for protecting an object of value such as a document of value.
17. A security paper (10) having a security element (12) according to at least one of claims 1 to 16.

18. A security paper according to claim 17, characterized in that the security element is present in the form of a thread or band.
19. A security paper (10) according to claim 18, characterized in that the security element (12) is embedded into the security paper (10) as a windowed security thread.
20. A security paper (10) according to claim 18, characterized in that the security element is disposed completely on the surface of the security paper (10).
21. A document of value having a security element according to at least one of claims 1 to 16.
22. A document of value (10) according to claim 21, characterized in that the printed image (26; 36, 38, 40; 46, 48; 52) disposed in the gaps (24; 30, 32, 34; 44) repeats the motif of another printed image of the security paper (10), such as a national flag, a denomination, a portrait or an architectural motif.
23. An object of value provided with a security element (12, 18) according to any of claims 1 to 16, in particular in the form of a transfer element (18) or label mounted, preferably glued, on the object of value.
24. A method for producing a security element with a printed image and a cover layer, the cover layer having gaps in the form of characters or patterns, characterized in that the cover layer with the gaps is first applied to a carrier film and the printed image then produced in the gaps of the cover layer in register by digital printing.
25. A method according to claim 24, characterized in that the cover layer comprises a metal layer, preferably a layer of aluminum, gold, copper, iron, nickel or an alloy containing one of said metals, and the metal layer is applied by vapor deposition or by electron-beam vaporization.
26. A method according to claim 24 or 25, characterized in that the printed image is produced in the gaps by a virtual digital printing method such as ink jet, thermal

sublimation or thermal transfer, a temporary digital printing method such as an electrophotographic method, ionography or magnetography, in particular by a toner-based printing method such as laser printing, or by a liquid-ink method such as Indigo.